

WHAT IS CLAIMED IS:

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1 1. A method to install a tool in a well, comprising:
2 running the tool into the well; and
3 fixing the tool to the well with a fixing agent without pumping the fixing agent
4 through a central passageway of the tool.

1 2. The method of claim 1, wherein the fixing agent comprises cement.

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1 3. The method of claim 1, wherein the tool comprises a casing conveyed
2 tool.

1 4. The method of claim 1, wherein the fixing comprises pumping the fixing
2 agent into the well and then running the tool into the well.

1 5. The method of claim 4, further comprising:
2 isolating a bottom of the tool to prevent the fixing agent from entering the central
3 passageway of the tool.

1 6. The method of claim 5, wherein the isolating comprises sealing off a
2 bottom end of the tool.

1 7. The method of claim 4, wherein the fixing comprises:
2 running a tubing to a region where the tool is to be fixed to the well; and
3 communicating the fixing agent into the well via the tubing.

1 8. The method of claim 4, wherein the fixing comprises:
2 pumping the fixing agent into an uncased region of the well.

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1 9. The method of claim 4, further comprising:
2 running a perforating gun string inside the tool; and
3 firing the perforating gun.

1 10. The method of claim 1, wherein the fixing comprises:
2 running the tool into the well; and
3 subsequently pumping the fixing agent into an annulus surrounding the tool.

1 11. The method of claim 10, wherein the pumping comprises:
2 using reverse circulation to pump the fixing agent into the annulus.

1 12. The method of claim 10, further comprising:
2 isolating the bottom of the tool to prevent the fixing agent from entering the
3 central passageway of the tool.

1 13. The method of claim 10, further comprising:
2 running a perforating gun string inside the tool; and
3 firing the perforating gun.

1 14. The method of claim 1, wherein the fixing comprises:
2 running a casing into a wellbore of the well; and
3 running the tool inside the casing.

1 15. The method of claim 14, further comprising:
2 pumping the fixing agent between the casing and the tool.

1 16. The method of claim 14, further comprising:
2 running a perforating gun inside the tool; and
3 firing the perforating gun.

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1 17. A method usable with a subterranean well, comprising:
2 running a tool into the well via a protection tubing;
3 introducing a fixing agent into the well after the running so that the fixing agent at
4 least partially surrounds the tool; and
5 operating the tool after the fixing agent sets.

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 18. The method of claim 17, wherein the fixing agent comprises cement.

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 19. The method of claim 17, wherein the tool comprises a casing conveyed
2 tool.

 20. The method of claim 17, wherein the operating the tool comprises firing a
perforating gun.

1 21. The method of claim 17, wherein the introducing the fixing agent
2 comprises:
3 introducing the fixing agent via a tubing; and
4 retrieving the tubing after the introduction of the fixing agent.

1 22. The method of claim 17, where the tool is part of a perforating gun string,
2 the method further comprising:
3 using the perforating gun string as a production tubing.

1 23. The method of claim 22, further comprising:
2 cleaning out the perforating gun string before using the gun string as the
3 production tubing.

1 24. A method usable with a subterranean well, comprising:
2 introducing a tool into the well;
3 introducing a fixing agent into an annulus between the tool and a wall of the well;
4 isolating a central passageway of the tool from the fixing agent; and
5 operating the tool after the cementing.

1 25. The method of claim 24, wherein the operating the tool comprises:
2 firing a perforating gun.

1 26. The method of claim 24, wherein the introducing the fixing agent
2 comprises:
3 running a tubing into the wellbore;
4 introducing the fixing agent via the tubing; and
5 retrieving the tubing after the introduction of the fixing agent.

1 27. The method of claim 24, wherein the tool is part of a perforating gun
2 string, the method further comprising:
3 using the perforating gun string as a production tubing.

1 28. The method of claim 27, further comprising:
2 cleaning out the perforating gun string before using the gun string as the
3 production tubing.

1 29. The method of claim 24, wherein the fixing agent comprises cement.

1 30. A method usable with a subterranean well, comprising:
2 running a tool into a wellbore of the subterranean well;
3 running a sensor into the wellbore next to the tool; and
4 using the sensor to monitor the introduction of a fixing agent to fix the tool inside
5 the well.

1 31. The method of claim 30, wherein the using the sensor comprises:
2 using an optical fiber.

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1 32. A perforating gun comprising:
2 a casing body comprising a longitudinal axis;
3 a fin radially extending from the casing body; and
4 a perforating charge attached to the fin and oriented to generate a perforation jet
5 in a radial direction away from the longitudinal axis of the casing body.

1 33. The perforating gun of claim 32, further comprising:
2 a plug to seal a passageway in the casing body, the plug adapted to rupture in
3 response to the perforating charge firing to open communication through the casing body.

1 34. The perforating gun of claim 32, wherein the fin includes a groove
2 adapted to receive a detonating cord that is coupled to the perforating charge.

1 35. The perforating gun of claim 32, wherein the perforating charge is adapted
2 to permit well fluid to flow through the remnants of the perforating charge after firing of
3 the perforating charge.

1 36. The perforating gun of claim 32, further comprising:
2 a ballistic junction to couple a detonating cord extending to the perforating charge
3 to a detonating cord extending to a perforating charge of another perforating gun.

1 37. The perforating gun of claim 36, wherein the ballistic junction comprises:
2 a first sleeve adapted to receive the first detonating cord; and
3 a second sleeve coupled to the first sleeve adapted to receive the second
4 detonating cord.

1 38. The perforating gun of claim 36, further comprising:
2 a detonating cord circumferentially disposed around the casing body to transfer
3 charges between detonating cords of the perforating gun.

1 39. The perforating gun of claim 32, wherein the fin is one of a plurality of
2 fins radially extending from the casing body.

1 40. The perforating gun of claim 39, wherein the perforating charge is one of a
2 plurality of perforating charges disposed in the fins and oriented to generate perforation
3 jets in radial directions from the longitudinal axis of the casing body.

1 41. The perforating gun of claim 40, wherein at least one of the perforating
2 charges is adapted to permit well fluid to flow through the remnants of the perforating
3 charge after firing of said at least one perforating charge.

1 42. The perforating gun of claim 40, wherein the perforating charges are
2 oriented in a planar phasing pattern.

1 43. The perforating gun of claim 40, wherein the perforating charges are
2 oriented in a spiral phasing pattern.

1 44. The perforating gun of claim 39, wherein each of the fins includes a
2 groove adapted to receive a detonating cord.

1 45. A system usable with a subterranean well comprising:
2 a fixing agent; and
3 a tool set in the fixing agent, a bottom end of the tool being sealed to prevent the
4 fixing agent from entering the tool before the fixing agent is set.

1 46. The system of claim 45, wherein the tool comprises a perforating gun.

1 47. The system of claim 45, wherein the fixing agent comprises cement.

1 48. A system usable with a subterranean well, comprising:
2 a fixing agent;
3 a perforating gun string set in the fixing agent,
4 wherein the perforating gun is adapted to produce well fluid from the well
5 through the production tubing after the perforating gun fires.

1 49. The system of claim 48, wherein the fixing agent comprises cement.

1 50. The system of claim 48, further comprising:
2 an optical fiber attached to the gun string; and
3 a circuit coupled to the optical fiber and adapted to monitor the fixing agent prior
4 to setting of the fixing agent.

1 51. The system of claim 50, wherein the circuit is adapted to use the optical
2 fiber to monitor a temperature of the fixing agent.

1 52. A method usable with a subterranean well comprising:
2 forming a section of a casing string to be inserted into a subterranean well;
3 forming an outer fin on the casing section; and
4 attaching a perforating charge to the fin, the perforating charge being oriented to
5 generate a perforation jet in a radial direction away from a longitudinal axis of the casing
6 body.

1 53. The method of claim 52, further comprising:
2 inserting a plug into a passageway of the casing body, the plug adapted to rupture
3 in response to the perforating charge firing to open communication through the casing
4 body.

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1 54. The method of claim 52, further comprising:
2 forming a groove in the fin to receive a detonating cord.

1 55. The method of claim 52, further comprising:
2 flowing well fluid through the remnants of the perforating charge after firing of
3 the perforating charge.

1 56. The method of claim 52, further comprising:
2 ballistically coupling the perforating charge to another perforating charge of an
3 adjacent casing section.

1 57. The method of claim 52, further comprising:
2 forming at least one additional outer fin on the casing section.

1 58. The method of claim 57, further comprising:
2 attaching at least one additional perforating charge to said at least one additional
3 outer fin.

1 59. The method of claim 58, further comprising:
2 flowing well fluid through the remnants of the perforating charges after firing of
3 the perforating charge.

1 60. The method of claim 57, further comprising:
2 forming at least on additional groove in said at least one additional outer fin to
3 receive a detonating cord.